# Finding of No Significant Impact Port-Orford-cedar Management Redwood National and State Parks Del Norte County, California February 2005

This Finding of No Significant Impact (FONSI) and the errata should be attached to the *Environmental Assessment, Port-Orford-cedar Management in Redwood National and State Parks, Del Norte County, California*, dated October 2004 (EA). This FONSI together with the environmental assessment and the errata constitute a complete record of the conservation planning and environmental impact analysis process for this proposal.

The National Park Service (NPS) will implement as its selected action Alternative 2, the proposed action/environmentally preferred alternative described in the *Environmental Assessment, Port-Orford-cedar Management in Redwood National and State Parks, Del Norte County, California*.

## Purpose and Need for Managing Port-Orford-cedar

Port-Orford-cedar (POC) is an ecologically and economically valuable native conifer growing only in northern California and southwestern Oregon. POC is traditionally used by native cultures of the Pacific Northwest in ceremonies, for building materials, and for arrow or lance shafts among other uses. POC is threatened by a root disease caused by the pathogen *Phytophthora lateralis* (PL) that was first documented in a nursery near Seattle, Washington, in 1923 and which is believed to be an introduced pest species. PL spread south from Seattle in nursery stock and infested soil and was first reported in the natural range of POC from a site near Coos Bay, Oregon, in 1952. Infected trees were identified in California in 1980. The genus *Phytophthora* is found throughout the world and encompasses numerous plant pathogens including the organism that causes Sudden Oak Death (*Phytophthora ramorum*) and the pathogen that caused the Irish potato famine (*Phytophthora infestans*). The root disease is almost always fatal to POC, although a small percent of POC appear to be naturally resistant. Because of its limited range and patchy distribution, the long-term survival of POC throughout its current range and at its present level of abundance is uncertain. In Redwood National and State Parks (RNSP), some POC are infected with the disease and are dead or dying.

The purpose of the proposed action is to maintain POC populations in RNSP over the long-term by protecting healthy POC, slowing the spread of the pathogen within the parks, and reducing the potential for the transmission of PL to presently uninfested areas, including areas outside of RNSP.

#### **Selected Action**

There are no changes in actions, mitigations, or other key elements of the proposed action as described in the EA and presented below as the selected action.

Summary of the Selected Action—The NPS will monitor the spread of the pathogen and the health of POC, increase public education about POC root disease, incorporate measures that protect POC and reduce the chance of spreading the pathogen for all park projects planned and implemented in areas where POC occur, reroute a section of the Little Bald Hills Trail that passes through an area infested with root disease, improve small areas on the Hiouchi Trail to reduce the chance of trail users spreading the pathogen, remove some POC that are a likely source of new infestations, and coordinate actions with the Finding of No Significant Impact

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U.S. Forest Service (USFS) to reduce the spread of the pathogen between the parks and the adjacent national forest lands.

Education, Monitoring, Project Evaluation, and Prevention—The selected action includes enhanced public outreach and education about POC and PL, monitoring and GIS-based analysis of PL spread, evaluating for the risk of spreading PL for all projects proposed in POC areas, and incorporating POC protection measures into resource management and fire management project planning and implementation.

All proposed park projects in a POC area will be analyzed using a list of risk factors and a decision key (Appendix 2 from the EA) to determine whether the project carries a reasonable potential to move PL spores into uninfested areas, either directly via running water, runoff, or root grafting, or indirectly by creating conditions where spores could easily be transported to other areas.

If a project is found to carry a reasonable risk of spreading PL, management practices outlined below will be considered to mitigate, reduce, or avoid this risk. If the risk cannot be appreciably reduced through practicable and cost-effective practices or design changes, the project will proceed if the value or need for the project outweighs the additional risk to POC. Wildfire suppression is an example of a situation where the need for immediate action might outweigh the additional risk of spreading PL.

## Management practices are designed to

- prevent or reduce the import of spores into uninfested areas, which occurs through offsite spores being picked up and carried into an uninfested project area.
- prevent or reduce the export of spores to uninfested areas, which occurs when onsite spores are moved offsite to an uninfested area.
- minimize increases in the level of inoculum or minimize the rate of spread in areas where the disease is localized or the infestation is intermittent.
- prevent the establishment of new infestation sites in high use areas that would likely serve as sources for further disease spread.

## Recommended management practices include

- rescheduling the project to be done outside the wet season or a wet period.
- redesigning a project to avoid POC areas.
- using uninfested water for dust abatement or fire suppression.
- designating ingress and egress routes that avoid infested POC areas.
- ensuring equipment is free of mud or other materials that could be carrying spores.
- washing equipment including tools, vehicles, and footwear.

Reroute the Little Bald Hills Trail—The NPS will construct a new 3,000-foot-long section of the Little Bald Hills Trail to bypass a 4,200-foot-long section to avoid an active infestation site along the current trail route. The section that is bypassed will be rehabilitated and abandoned.

*Improve the Hiouchi Trail and Other Trails*—The Hiouchi Trail will be improved at wet areas to reduce contact between trail users and potentially infested mud or water. Other trails that are found to have the potential to spread PL, including other areas along the Little Bald Hills Trail outside the bypassed section, will be improved at wet areas or other areas such as intermittent stream crossings that are potential sources of new infestations.

Small areas along the Hiouchi Trail will be improved to reduce the risk of trail users contacting infested mud and transporting it between infested and uninfested POC stands. Trail improvements include improving drainage, re-routing or armoring the trail bed with crushed rock, elevating the trail surface above wet areas, or constructing raised crossings to prevent contact between trail users and water or infested mud. Drainage structures such as ditches along the trail or culverts at stream crossings will be improved or installed to ensure that runoff does not openly flow across or along trails. The trail surface will be armored with rock or other materials to minimize contact with mud and surface water. Raised crossings will be constructed at streams, seeps, or other continually wet places.

Similar improvements will be made to other trails where there is a moderate or high risk of trail users picking up or depositing pathogen-infested mud, such as small stream crossings, marshy areas, or locations where seeps flow across or along the trail.

Localized Sanitation—Where there are small, localized infestation sites in the parks, both healthy and diseased POC less than 15 inches in diameter at breast height (dbh) will be killed by girdling or cut to create an area where there are no POC to serve as new host trees. This action is termed localized sanitation to emphasize that it applies to a localized active infestation and to distinguish it from preventative sanitation (Alternative 3 – not selected) where healthy POC would be removed to prevent future infestation even if no trees are thought to be infected at the time of treatment but that could be infected from nearby PL infestations. When the POC are killed, the PL spores eventually die but can persist in the soil for as long as seven years, so that removal is repeated until an area has been free of POC for seven years. Under the selected action, sanitation is defined as removal of all POC around an area infested by PL.

Because only one infestation site is scheduled for treatment, the action is termed "localized." Localized sanitation is intended to stop infected POC in a small area from producing PL spores to reduce the risk of infected trees serving as a source of spores that could continue to spread the disease. Removal of POC from PL infestations to keep PL from spreading is termed eradication by the USFS and BLM in their proposal for POC management in southwestern Oregon and northern California, including USFS lands adjacent to RNSP. USFS and BLM define sanitation as removal of POC from uninfested areas along roads or trails, or from infested areas if there is a high risk of spreading spores, which generally means along roads or trails. Thus, localized sanitation under the selected action in RNSP would be called eradication under the USFS definition.

At this time, only the infestation site on the Hiouchi Trail will be treated because only this site has a high potential for spreading PL. Localized sanitation would be prescribed in sites that become infested if the following criteria are met:

- Trees are less than fifteen inches dbh.
- The infestation covers less than five acres.
- Healthy trees have a high probability of being killed by the disease in the absence of treatment due to their proximity to diseased trees. This distance is generally 25 to 50 feet, depending on crown characteristics, slope characteristics, and drainage situation. Healthy POC trees that are more than 50 feet from an infected tree would not be removed.
- The infestation is upstream or upslope from a healthy population of POC near a trail, road, or park facility and could be a potential source for further spread because of wet conditions conducive to spore movement.
- The infestation site borders or is close to a trail, road, or park facility that encourages human use and therefore increases the potential for spreading PL. All POC would be removed within a distance two-and-one-half times the diameter of the crown of the largest infected tree. Field

reconnaissance by park botanists indicates that two-and-one-half times the crown diameter of the largest infected tree is generally less than 50 feet because only trees less than 15 inches dbh would be removed.

The method of treating these trees would depend on their size. Trees less than six inches dbh would be cut, limbed, and bucked and the debris placed in contact with the ground for faster decomposition. Some debris piles might be burned during the winter to reduce excessive fuel loadings that contribute to hazardous fuel build-ups. Cutting or girdling would be used on larger trees up to 15 inches dbh, depending on whether a girdled tree that might be left standing would become a hazard. POC seedlings would be pulled by hand or using hand tools in the treated area for five to seven years as necessary.

The above description of the selected action includes all actions, mitigations, and key elements of the proposed action as they appeared in the EA.

## **Consistency with Adjacent Federal Land Management Actions**

The Smith River National Recreation Area (NRA) managed out of the Gasquet Ranger District of Six Rivers National Forest borders RNSP to the east. The USFS has taken the lead on POC root disease management in northern California. The three main drainages of the Smith River within the NRA are already infested with PL. The main fork of the Smith River runs through Jedediah Smith Redwoods State Park, one of the three state parks managed cooperatively as RNSP by the California Department of Parks and Recreation (CDPR) and the NPS. All presently uninfested POC stands bordering the Smith River and its tributaries are at high risk of infestation, particularly those below the high water mark on the Smith River. The NPS and CDPR are cooperating with the USFS to manage their respective lands to reduce the risk of spreading PL into uninfested areas within the Smith River watershed.

Management of POC in RNSP under the selected action has been developed in consultation with the USFS and the BLM, and is consistent with the management direction on USFS and BLM lands adjacent to and near RNSP, as described in the March 2004 *Record of Decision and Land and Resource Management Plan Amendment for Management of Port-Orford-cedar in Southwest Oregon, Siskiyou National Forest, Coos, Curry, and Josephine Counties in Oregon; Del Norte County in California and the May 2004 <i>Record of Decision and Resource Management Plan Amendment for Management of Port-Orford-cedar in Southwest Oregon, Coos Bay, Medford, and Roseburg Districts* (RODs). Under the RODs, the three BLM districts and the National Forest will manage POC under the direction found in Alternative 2 in the January 2004 "Final Supplemental Environmental Impact Statement for Management of Port-Orford-cedar in Southwest Oregon" (FSEIS). The RODs also assume that the Klamath, Shasta-Trinity, and Six Rivers National Forests in Region 5, California, which were cooperators on the FSEIS, will continue to manage POC as least as protectively as their current management direction from approved Land Management Plans for those forests that contain POC.

#### **Environmentally Preferred Alternative**

Alternative 2 is the environmentally preferred alternative because it offers the best chance to protect POC in the long-term by reducing the spread of PL through managing the most serious infestation sites currently known in RNSP and minimizing the number of healthy and possibly PL-resistant POC that will be removed.

Alternatives 1 (no action) and 3 (preventative sanitation) are described in more detail under Other Alternatives Considered. Alternative 1 is not the environmentally preferred alternative because of the

continued risk of spreading PL from the infestations along the Little Bald Hills and Hiouchi Trails. The PL infestation in the parks has continued to spread under the current management program (no action alternative).

Alternative 3 (preventative sanitation) is not environmentally preferred because it requires the removal of POC from along about 7.8 miles of park roads and trails in areas that are not currently known to be infested with PL, and the removal would continue until there are no POC available to serve as hosts for PL. Some of the POC that would be removed under the preventative sanitation alternative are likely to be resistant to PL and can serve as a future source of resistant stock. The Little Bald Hills Trail would continue to be closed seasonally but would not be relocated, and would continue to represent a source of PL that could spread.

#### **Other Alternatives Considered**

The Environmental Assessment considered three alternatives — the no action alternative (Alternative 1) and two action alternatives, which included several actions common to both action alternatives. The no action alternative (Alternative 1) included continued seasonal closure of the Little Bald Hills Trail and public education. Alternative 2, the Proposed Action/Environmentally Preferred Alternative, is described above as the selected action. Alternative 3 (preventative sanitation) involves removal of all POC of all size classes, regardless of whether an infestation is present, within 25 to 50 feet on each side of roads and trails until no POC are available to serve as hosts for PL and continued seasonal closure of the Little Bald Hills Trail for the foreseeable future.

#### Alternative 1. No Action.

Alternative 1 (no action) is the current management program for POC in the parks and includes those measures in place to reduce the continued spread of the disease within and outside the parks.

The current primary management action to protect POC in RNSP is the seasonal closure of the Little Bald Hills Trail, along with providing information to park visitors about POC and root disease. The Little Bald Hills Trail is closed during the wet season, with interpretive signs at the Little Bald Hills Trailhead explaining the reasons for closure. The Little Bald Hills Trail connects to the Paradise Trail in Six Rivers National Forest and the NRA. The Paradise Trail is also closed during the wet season (generally November-May) and is signed to explain the reasons for closure. The trail closures are coordinated between the NPS and the USFS and were first implemented in 2001. The NPS and CDPR present information on POC in park publications and in visitor contact areas, and cover POC-related issues in interpretive programs. Ongoing public information efforts include an article on POC root disease in the free Visitor Guides and backcountry information sheets, distribution of POC root disease informational brochures produced by the USFS, and inclusion of POC-related issues in regularly scheduled interpretive programs.

This alternative was not selected because it would allow PL to continue to spread within RNSP, which would result in continued loss of POC at an increased rate; and continued seasonal closure of the Little Bald Hills Trail, which would deny recreational access to portions of RNSP and the Smith River NRA for half the year.

#### Alternative 3. Preventative Sanitation.

Under Alternative 3 (preventative sanitation), all POC of all size classes within 25 to 50 feet on each side of roads and trails, and within approximately 50 feet from where a stream or watercourse crosses the trail

or road, would be removed until no POC are available to serve as hosts for PL, regardless of whether an infestation is present or not. The Little Bald Hills Trail would be closed seasonally as well as during periods of wet weather until PL is no longer considered a threat to POC.

Under Alternative 3, all POC within approximately 25 to 50 feet on either side of an estimated 7.8 miles of trails and unimproved roads in RNSP in the Smith River watershed would be removed or killed by girdling. Priority would be given to wet or muddy areas, or where surface water accumulates or flows across roads and trails. POC removal would continue until no POC seedlings are found or until PL is no longer considered a threat to POC in the parks. An area is considered PL-free after POC have been absent from an area for seven years. Preventative sanitation would take more than seven years from the time the treatment is begun to exhaust the POC seed bank, because POC seeds prolifically and because some PL spores can persist for up to seven years in soil, although most POC seeds germinate the first spring after dispersal.

Preventative sanitation would reduce the number of potential disease host trees and prevent continued reinfection by spores already in the soil or newly brought into the area. Removing diseased trees reduces the spore load present in the soil adjacent to the trail or road, thus reducing PL spread potential. Removing healthy trees from the trail and road corridors prevents infected mud or soil, imported on vehicles or footwear, from contacting and possibly infecting other POC trees that would serve as hosts for spreading disease into new areas.

It is estimated that thousands of healthy POC trees of all sizes would be removed from trail and unimproved road corridors passing through POC areas along the Little Bald Hills Trail, Mill Creek Trail, and Hiouchi Trail, as well as several shorter connecting trails and dirt roads throughout Jedediah Smith Redwoods State Park within the POC vegetation types.

The Little Bald Hills Trail would continue to be closed seasonally until the trail has been treated to remove POC and the treated area has been free of host POC for seven years.

Alternative 3 (preventative sanitation) was not selected because it would remove a native species from portions of the parks without assurance that such treatment would be effective in protecting those POC that would remain, and because the Little Bald Hills trail seasonal closure would continue to deny recreational access to a major park trail for half the year.

## **Alternatives Considered but Rejected**

The following alternatives were considered but, but not developed for full analysis in the EA for the reasons stated.

Permanent Closure and Abandonment of Trails—Under this alternative, all trails that pass near infected trees, including the Little Bald Hills Trail and the Hiouchi Trail, would be permanently closed and abandoned. Park roads would not be closed and would continue to serve as a conduit for spreading PL. The sources of PL infestation would continue to exist and to threaten POC within the parks. This action was not considered further because it would not protect healthy POC trees and does not meet the parks' mission to provide visitor use and enjoyment.

Sanitation of All Infestation Sites—This action is defined as eradication under UFSF and BLM management in other parts of the range of POC. Under this alternative, all live POC trees within all disease-infested areas would be removed or killed with the objective of isolating and eventually

eradicating the disease from all infestation sites in the parks (complete sanitation). The sanitation area would include a buffer of 25 to 50 feet surrounding each infestation site. Both healthy and diseased trees would be removed from the infestation site and the buffer zone for both single tree-infestations and infestations that cover a large area. This alternative requires continual removal of all live POC in the treated areas and monitoring to ensure that the area remains free of POC seedlings for at least seven years.

This alternative requires removal of all live POC within all currently infested areas until POC have been absent for seven years, with the objective of removing the hosts for spores and eventually eradicating the disease. Sanitation of infested sites differs from localized sanitation at the Hiouchi Trail infestation site (Alternative 2–selected action) or preventative sanitation (Alternative 3–not selected). Localized sanitation at the Hiouchi Trail infestation and other small sites that meet the criteria described under the selected action would involve removal of trees less than 15 inches in diameter from small active infestations to prevent the infestation from spreading. Preventative sanitation is the removal of all sizes of live trees in uninfested areas that are at risk of infestation (roads, trails, and within 50 feet of watercourses crossed by roads or trails), with the objective of reducing the risk that disease spores may be imported into these uninfested areas and create new infestations. In preventative sanitation, no treatment is prescribed for infested areas where there is little risk of spreading PL spores. Complete sanitation would require removal of all POC from large areas where infestations are present in an attempt to completely remove POC so that it cannot serve as a host for PL spores from infested areas.

In the Little Bald Hills, complete sanitation of infestation sites would require removal of thousands of healthy trees in all age and size classes on 25 acres within the Little Bald Hills infestation site. In RNSP along the Smith River corridor, hundreds of trees in all age and size classes would also be removed at current infestation sites. Each newly discovered infestation site would be similarly treated. PL transported from infested areas outside the parks, primarily from infested areas upstream along the Smith River, would continue to re-infect POC stands. This alternative would also contribute to fuel build-ups from trees that have been removed and are piled on the ground, increasing the fire hazard. This alternative would be considered an impairment of park resources because it would require complete and continued removal of a native species, some individuals of which are resistant to the disease and which is considered an important component of unique vegetation communities in RNSP. Therefore, sanitation of all infestation sites (eradication) was not considered a reasonable alternative and was not analyzed further.

#### **Consultation and Public Review**

The NPS presented the proposal for rerouting the Little Bald Hills Trail to the U.S. Fish and Wildlife Service (USFWS) and NOAA Fisheries in August 2003 at the regular quarterly meeting for reviewing proposals that might affect listed threatened or endangered species. At that time, NOAA Fisheries concurred with the NPS' determination that the selected action would not affect listed fish species and no additional consultation was conducted.

The proposals for removing POC, either as local sanitation (selected action, Alternative 2) or preventative sanitation (Alternative 3–not selected) were discussed with USFWS endangered species program staff in March 2004.

The NPS submitted a Biological Assessment on the preferred alternative to the USFWS and received a Letter of Concurrence on July 20, 2004, File Number 1-14-2004-2134, concurring with the NPS' determination that the project may affect but is not likely to adversely affect listed threatened species.

Public scoping meetings were held on February 11 and 12, 2004, in Crescent City and Arcata respectively. The meetings were announced by direct mailing to local agencies, organizations, and individuals who had commented on forest management proposals in the 2000 General Management Plan. One person attended each meeting. Issues raised were the effect of trail closure on public access to the parks and the effectiveness of sanitation at controlling the spread of PL.

The EA was released for public review on October 27, 2004 and was available for review and comment through December 3, 2004. Approximately 80 copies were mailed to local elected officials, government agencies, organizations, and individuals in Del Norte and Humboldt Counties. Copies were sent to four local libraries and were available at park offices in Crescent City and Orick, and the main park visitor center in Orick. The document was also available on the Internet. A press release was sent to local print and radio media. The Eureka Times-Standard, the daily newspaper of record in Humboldt County, printed a story on page 2 on October 29 describing the proposal, with a focus on the rerouting of the Little Bald Hills Trail. The newspaper article provided the Internet address where the plan was available.

Two comments were received on the EA. One comment from the Crescent City/Del Norte Chamber of Commerce supported the parks' proposals. The second comment from the USFS POC Program Manager focused on clarifications to terminology related to epidemiology and treatment of root disease. These clarifications form the basis of the errata but do not require changes to the selected action or change the probable effectiveness of the selected action or the potential effects on resources.

## **Environmental Consequences of the Selected Alternative**

As documented in the EA and summarized below, the NPS has determined that the selected alternative would not have significant adverse effects on park resources or values or visitor use and experience.

The selected action includes public education, mapping of POC, monitoring for POC health and effectiveness of management actions, analysis of the risk from spreading PL by proposed park actions, and incorporation of POC protection measures into park project planning and fire management actions to prevent continued spread of PL and infection of POC. These actions will have no direct effects on air quality, geological resources, soils, topography, water resources including water quality, floodplains and wetlands, wildlife, threatened or endangered species or any other rare species, cultural resources, scenic quality and esthetics, or visitor use or enjoyment. The selected action will have indirect negligible long-term benefits, which are discussed in more detail in the vegetation section below, to individual POC and to those plant associations that contain POC.

The selected action also includes rerouting a segment of the Little Bald Hills Trail, improving short sections along the Hiouchi Trail, and removing POC less than 15 inches in diameter from the infestation site along the Hiouchi Trail. If other infestation sites are discovered along trails or roads where these sites could potentially spread PL, the trails will be improved in a manner similar to the Hiouchi Trail improvements, and will have similar impacts. The effects of these actions are as follows.

Air Quality—There will be temporary, localized, negligible impacts to air quality due to dust from ground disturbance for constructing and maintaining a new section of the Little Bald Hills Trail and rehabilitating the old trail, and from hiking, bicycling, and equestrian use of the trail. The Hiouchi Trail is a hiking trail that passes through densely vegetated areas where the forest canopy keeps the soils moist. Dust generated from the Hiouchi Trail improvements and from hikers using the trail will be negligible. Removal of POC at the Hiouchi Trail infestation site will create negligible amounts of dust. If cut sections of trees and seedlings are piled and burned instead of being left to decompose on the ground, there will be adverse

effects on air quality but these effects will be localized, temporary, and minor, with no long-term adverse effects.

Geology, topography and soils—There will be a negligible to minor, long-term effects on the soils in the Little Bald Hills from constructing and maintaining a new 3,000-foot-long trail segment on the new alignment, and from rehabilitating the 4,200-foot-long segment on the existing alignment.

Erosion of newly disturbed soils from constructing the new segment will be minimized or avoided through locating the new segment where soils are most stable and on gentle slopes or flat ground to the greatest extent practicable to minimize cut and fill and the width of the disturbance corridor. These actions also contribute to the long-term stability of the trail and reduce maintenance and repairs.

There will be very minor localized alterations to topography from rerouting the Little Bald Hills Trail where the new alignment will ascend to the ridge top. The proposed action will have negligible but adverse effects on soils from disturbance for construction and maintenance.

Water Quality, Hydrology, Floodplains, Wetlands, and Wild and Scenic Rivers—Short-term adverse effects on water quality under any of the alternatives will be negligible from rerouting the Little Bald Hills Trail, rehabilitating the abandoned section, improving short sections of the Hiouchi Trail, and removing POC at the Hiouchi infestation site. Long-term adverse effects on water quality from trail maintenance and use will be negligible.

The selected action will have no effect on the main stem of the Smith River. There will be no direct effect on the anadromous fishery that is the outstandingly remarkable value for which the Smith is designated as a federal and state Wild and Scenic River.

There are no direct effects on permanent streams or other natural bodies of surface water under the selected action. POC is not primarily a riparian species in RNSP and is not consistently associated with permanent streams or riparian zones in RNSP vegetation associations. Because POC root disease is transmitted through running or standing water, all actions are designed to avoid direct contact with running or standing water or to minimize human and livestock contact with water to the greatest extent practicable.

There will be no effects on floodplains under the selected action. Only the Smith River and Mill Creek have well-developed floodplains, which will not be affected by the selected action. The major infestation site in the Little Bald Hills is currently located high in the drainage where stream channels are narrow and streams run intermittently during heavy rain events. The new alignment will be located higher in the drainage to avoid the existing infestation sites.

The effects on water resources are related to effects on water quality from soil erosion and to effects on very small areas of riparian wetlands at wet areas along the Little Bald Hills and Hiouchi Trails. The effects on water quality are direct, localized at drainages, temporary, and adverse during rain storms but long-term over the life of the Little Bald Hills and Hiouchi Trails from soil erosion due to construction of the Little Bald Hills Trail reroute and improvements to the Hiouchi Trail, and use and maintenance of the trails. The effects on water resources, including water quality, floodplains, and wetlands, are negligible under the selected alternative.

*Vegetation, Including Sensitive Plant Species*—No federally or state listed or candidate plant species occur within POC habitats in the parks. The Little Bald Hills Trail crosses serpentine soils. Several plant

species listed by the California Native Plant Society as sensitive because of limited distribution occur in the serpentine areas in the Little Bald Hills. Park botanists have inspected the proposed new alignment of the trail and have determined that no sensitive plants are present that cannot be avoided. If sensitive plants are encountered during the final layout for the reroute, trail designers will avoid these plants to the greatest extent practicable by altering the trail alignment. Serpentine soils in the Little Bald Hills are generally inhospitable to most plant species, including invasive exotic plants. Therefore, rerouting the trail is not anticipated to increase exotic plant populations along the new trail.

Long-term persistence of POC is anticipated be greatest under the proposed action. The POC population in RNSP is anticipated to stabilize over the very long-term, either because only PL-resistant trees have survived (no action alternative) or because the mortality rate declines due to effective control of the disease through actions described in this plan in combination with the actions to be taken outside the parks by the USFS and the BLM throughout the range of POC.

The actions related to public education are designed to slow the spread of PL by increasing staff and public awareness of POC-related issues and by making recommendations for project modifications that will reduce the likelihood of the project introducing the disease to uninfested areas. These actions by themselves will have a negligible positive effect on existing vegetation species composition and structure in vegetation associations in the parks that have POC as a component. None of these actions have the potential to have direct positive or negative effects on POC and no potential for any direct short-term effect on any other plant species. The long-term effects on vegetation are negligible, indirect, positive, and will occur throughout the range of POC within the parks. The degree of benefit from increased public awareness of POC root disease depends on the success of these actions in combination with the proposed in maintaining healthy populations of POC in the parks.

Rerouting the Little Bald Hills trail will affect about 1.0 acre of shrubs and understory vegetation that will be grubbed out to construct the trail. Understory vegetation, shrubs, and small trees up to 14 inches in diameter might be removed during construction. Hiouchi trail improvements and localized sanitation of POC within the Hiouchi infestation site (site #4 in the EA) will have no effect on other riparian or forest vegetation. Trail improvements will take place within the existing disturbed trail corridor, and will remove only small amounts of trailside vegetation. The vegetation removed for rerouting the Little Bald Hills Trail, brushing the First Upper Gulch Road for access to the Little Bald Hills Trail, and for minor improvements to wet areas along the Hiouchi Trail is common and routinely cleared or cut back for trail maintenance.

Cutting or girdling of POC less than 15 inches dbh for localized sanitation at site 4 will result in negligible changes to vegetation community structure and composition in less than 2 acres in the old-growth forest and riparian zone immediately adjacent to the Smith River. There will be a negligible increase in the potential for invasion by exotic plant species in those areas from which POC are removed. These areas are already subject to invasion by exotic plants because of human use. Areas from which POC have been removed will be monitored for invasive exotic plants during periodic surveys for POC seedlings, and any invasive plants will be removed along with the POC seedlings.

Non-resistant POC will continue to die in the PL infestation sites along the current alignment of the Little Bald Hills Trail until either the POC seed bank or the PL spore bank is exhausted. This is expected to last for at least several decades, since PL spores can survive in soils for as long as 7 years. Removal of all healthy and diseased POC under 15 inches dbh from the Hiouchi Trail infestation will be a direct, localized long-term adverse effect but resistant POC will persist in other places in the parks. Although some POC will die or be removed, POC will persist in RNSP as long as there are PL-resistant trees.

Wildlife, including Sensitive Species—No streams will be directly affected by the selected action and therefore, the selected action will have no direct effects on fish, fish habitat, or stream-dwelling species. POC provides shade and large woody debris for streams in other places in its range, but POC is not a major riparian component along RNSP streams.

The actions common to all alternatives are designed to slow the spread of PL by increasing staff and public awareness of POC-related issues, and making recommendations for project modifications that will reduce the likelihood of the project introducing the disease to uninfested areas. To the extent that education and project planning slow the spread of PL and reduce long-term mortality of POC, the effects on wildlife habitat will be beneficial over the long-term by maintaining the current composition and structure of the vegetation community. These actions will have negligible to minor long-term positive effects on wildlife species that occupy areas with POC to the extent that POC persists as a component of park vegetation communities.

Under the proposed action, the main impact on wildlife will result from habitat changes due to continued POC mortality and POC treatment actions in the short-term with a long-term benefit as mortality of POC decreases. Wildlife also could be affected by localized disturbance from humans and equipment associated with project activities.

The project area that will be directly affected by the selected action includes habitat for two federally listed threatened bird species (northern spotted owl and marbled murrelet), and two federal candidate species (Pacific fisher and Mardon skipper).

The largest population of POC and the largest POC infestation occurs in the Little Bald Hills, and the changes to forest stand structure as a result of POC mortality are expected to be greatest in this area. Forest canopy will continue to decline as non-resistant POC become infected and die, but the canopy will gradually increase as Douglas-fir and tanoak replace the diseased POC. Rerouting the Little Bald Hills Trail out of the infestation site is expected to substantially reduce the export of PL to new sites away from the Little Bald Hills.

Construction of the rerouted section of the Little Bald Hills trail will require removal of some elements of potentially suitable spotted owl habitat along 0.22 mile of the reroute area. This is estimated to result in degradation of a maximum of one acre of spotted owl nesting, roosting, and foraging habitat. Shrubs and small trees (less than 14 inches diameter) might be removed from the trail corridor, and downed woody debris will be cleared where necessary by moving it out of the trail corridor. Spotted owl surveys will be done at this location to ensure that no owls would be adversely affected by trail construction activities.

The selected action will have negligible to minor, short-term localized adverse effects on wildlife, including threatened bird species and the fisher, from disturbance from humans and equipment during construction of the Little Bald Hills Trail reroute. There might be moderate adverse effects on Mardon skipper butterflies from work crews walking through skipper habitat if eggs or larvae are present. There will be negligible effects on wildlife from removal of POC along the Hiouchi Trail or from trail improvements, because these areas are subject to ongoing disturbance from use and maintenance of the trails, and because other trees are present to provide habitat. The primary impact on wildlife will be a negligible to minor adverse effect on wildlife habitat from loss of POC until the spread of PL is reduced and no new trees are infected, and other tree species fill in gaps in the canopy. Cavity-nesting birds will benefit from creation of snags as larger POC die but this will occur in the future.

Minor indirect long-term cumulative impacts on northern spotted owls will result from continued annual trail maintenance through suitable northern spotted owl habitat during the latter half of the breeding season.

No potentially suitable marbled murrelet nesting habitat, including primary constituent elements of critical habitat, will be removed or modified by any of the proposed management actions. The proposed action will not affect marbled murrelets provided that work restriction periods are observed.

The NPS determined that the proposed action may affect but is not likely to adversely affect the fisher and may adversely affect the Mardon skipper. Because these two species currently are candidates for federal listing, concurrence from USFWS is not required and no additional mitigation for adverse effects is required.

The USFWS has concurred with the NPS determination that the proposed action may affect but is not likely to adversely affect the northern spotted owls, provided that work restriction periods are observed. The proposed action will have negligible to minor short-term localized adverse effects on habitat suitable for northern spotted owls from continued mortality and removal of POC for the Little Bald Hills trail reroute and to treat the localized infestation on the Hiouchi Trail but no direct effects on owls.

Archeological and Historic Resources—Proposals for POC management are anticipated to have negligible to minor impacts on archeological or historic resources, traditional cultural properties, and cultural landscapes. Every effort will be made to avoid adverse impacts to cultural resources by routing trails away from known resources and sites that might be damaged by construction, maintenance, or visitor use. When avoidance is neither feasible nor prudent and the undertaking might result in adverse impacts, the NPS or CDPR will determine appropriate mitigation in consultation with the California SHPO, the Smith River Rancheria, and Elk Valley Rancheria as appropriate.

The NPS and CDPR will consult with affiliated American Indian tribes, including the Smith River Rancheria and Elk Valley Rancheria, and the Yurok Tribal Historic Preservation Officer if appropriate, to develop the POC management strategies in way that respects the beliefs, traditions, and other cultural values of American Indian tribes that have ancestral ties to lands encompassed by RNSP. The NPS and CDPR will consult with American Indian groups on all actions that have the potential to affect cultural resources associated with that group. Should consultations indicate that any proposal might adversely affect American Indian cultural sites or interfere with traditional activities conducted in accordance with applicable laws and regulations, the NPS and CDPR will work as required with affected tribes and the California SHPO to develop appropriate mitigation strategies.

Approximately 4,200 feet of the existing Little Bald Hills Trail will be permanently closed and a reroute of approximately 3,000 feet in length will be constructed. Rehabilitation of the 4,200-foot section of the Little Bald Hills Trail will consist of replanting the ends of this portion of trail with native vegetation and covering with brush. The NPS conducted an archeological survey and consulted with the Smith River Rancheria and Elk Valley Rancheria to identify any cultural resources that could be affected by the proposed reroute. This section of trail to be closed consists of a portion of the historic Kelsey Trail. This action will have no impact to the historic trail or to cultural properties important to American Indian tribes with cultural ties to the area.

The proposed action will have negligible to minor adverse effects on cultural resources.

*Visitor Experience*—Under the selected action, rerouting the Little Bald Hills Trail around the infestation site will shorten the trail by about 1,000 feet (0.2 miles) and allow for year-round visitor access to the Little Bald Hills and the primitive campground. Use of the trail year-round increases the risk that visitors will continue to spread PL if they leave the trail but this risk is negligible compared to the long-term benefit to POC persistence from rerouting the trail.

The infestation site that will be bypassed will not be visible to most visitors, although some of the dying trees will be visible among the other trees in the forest. Eventually, the dead trees will lose their needles and turn grey, which will reduce their visual prominence. There will be a long-term minor to moderate benefit to trail users resulting from year-round access to the Little Bald Hills Trail.

Within the Smith River corridor, live POC less than 15 inches dbh will be removed from the localized sanitation site along the Hiouchi Trail. There will be very short-term localized adverse effects on visitor access because the trail will be closed temporarily during operations to reroute the trail. These closures are not expected to last more than several days and will not occur on weekends or other periods of high visitation. The removal of POC under localized sanitation will reduce the number of trees with obvious diseased or injured appearance but will also reduce the number of live trees. Some visitors will object to the removal of live apparently healthy trees but park staff will provide information on the need to remove trees to protect the remaining POC within and outside of the parks. There will be a short-term minor adverse effect on the visitor experience from temporary trail closures and removal of small numbers of diseased trees. There will be a long-term minor benefit to visitors from reducing the spread of PL and reducing the number of POC killed by the disease but a short-term minor adverse effect on those visitors who object to removal of live trees in a national park.

Trail improvements are intended to reduce visitor contact with mud or wet areas near POC on the trail. Visitors will not have to negotiate wet or muddy areas along the trails. These trail segments will be closed temporarily while work is being conducted. Closures are short-term adverse effects to visitor access. There is a long-term minor to moderate benefit to the visitor experience from improved trails with year round access.

The selected action will have negligible to minor temporary adverse effects on visual quality in the immediate vicinity of the Hiouchi Trail infestation site when POC are removed. POC are not a major component of park vegetation communities and the trees to be removed are less than 15 inches in diameter and do not occur in dense stands.

Park Economics—The effects on park operations under the proposed action include the time and cost to reroute the Little Bald Hills Trail, improve small sections of trails, and remove trees from the localized infestation sites. Rerouting the Little Bald Hills Trail will require several months for the trail crew to design and construct the new section, at an estimated cost of \$60,000. There will be little or no change in the time needed for maintenance of the new trail. Trail improvements to other trails will also require time depending on the amount of work needed. Tree removal at Hiouchi Trail is anticipated to take a crew of 2 people less than one week to accomplish.

## **Cumulative Impacts**

Cumulative impacts under the selected action relate to the effectiveness of management strategies on USFS and BLM lands throughout the range of POC at reducing the spread of PL and maintaining healthy populations of POC. POC serves as a primary riparian tree species in some locations outside RNSP, and contributes to habitat quality for anadromous fish. Cumulative effects on POC from other actions

undertaken in RNSP relate primarily to fire management in the Little Bald Hills. Prescribed fire is proposed in the Little Bald Hills in the Fire Management Plan. The selected action includes POC protection measures for fire management actions in the Little Bald Hills to reduce the spread of PL. In case of wildfire, protection of park resources in general will take precedence over protection of individual POC.

## Non-Impairment of Park Resources and Values

Under the selected action, the NPS will increase public education about POC and root disease; map POC and PL and monitor the health of POC and the locations of PL using GIS mapping technology; analyze park projects, including fire management actions, for the risk of spreading PL; and incorporate POC protection measures into projects and actions undertaken in POC areas. None of these actions have the potential to directly adversely affect park resources or values, and therefore, these actions will not impair park resources.

Air Quality—Under the selected action, a 3000-foot-long section of the Little Bald Hills Trail will be rerouted to bypass a 4,200-foot-long section that will be abandoned and rehabilitated. There will be short-term localized increases in dust from constructing the new trail and rehabilitating the abandoned section. Over the long-term, maintenance and use of the new trail will create dust. Removal of POC from the Hiouchi Trail infestation site and improvements to several places on the trail will temporarily increase dust and decrease air quality. There might be decreases in air quality if POC that have been removed are piled and burned, but the decrease will be temporary and localized. The effects on air quality and air quality related values from these actions will be localized, generally short-term, adverse, and negligible. Therefore, the selected action will not impair air quality or air quality related values in the park.

Soils and Topography—Rerouting the Little Bald Hills Trail will affect about one acre of soils along the length of the reroute. Rehabilitating the abandoned section will affect soils that were originally disturbed by construction, maintenance, and use of the trail. Improvements to the Hiouchi Trail and removal of POC in the infestation site will affect a very small area of soils that are disturbed from use and maintenance of the trail. The new segment of the Little Bald Hills Trail will follow slope contours to minimize cut-and-fill and be sited on stable soils. Therefore, the selected action will not create major alterations to existing topography and will not impair soils.

Water Resources—The effects on water resources are related to effects on water quality from soil erosion and to effects on very small areas of riparian wetlands at wet areas along the Little Bald Hills and Hiouchi Trails. Adverse effects on water quality are direct, localized at drainages, temporary during rain storms from soil erosion due to construction of the Little Bald Hills Trail reroute, improvements to the Hiouchi Trail, and use and maintenance of the trails but long-term over the life of the trails, and negligible. The Little Bald Hills Trail will be rerouted to stable soils and will minimize cut-and-fill to reduce soil erosion, and thus protect water quality. The Hiouchi Trail improvements will protect small areas of riparian wetlands by raising the trail tread or using bridges to protect wet areas from being trodden by hikers where they could pick up PL spores and spread them to other areas. Adverse effects on water resources, including water quality, floodplains, and wetlands, are negligible under the selected alternative. No floodplains will be affected by the selected action. Therefore, the selected action will not impair water resources, including floodplains and wetlands.

Vegetation, including Sensitive Plant Species—No federally or state listed or candidate plant species occur within POC habitats in the parks. The Little Bald Hills Trail and the proposed new route cross

serpentine soils on which several plant species occur that are listed as uncommon or otherwise sensitive by the California Native Plant Society. Park botanists have inspected the route and will accompany trail designers to identify any rare plants and to determine the final route to avoid removal of sensitive plants to the greatest extent possible. Therefore, there will be no impact on rare, threatened or endangered plants from any proposed alternatives, and there will be no impairment of sensitive plant resources.

Under the selected action, rerouting the Little Bald Hills Trail, improving small sections of the Hiouchi Trail, and maintaining these trails will disturb vegetation that is routinely cut back for annual trail maintenance.

Under the selected action, both healthy and diseased POC will be removed from about 2 acres at the Hiouchi Trail infestation site. POC seedlings will be removed for at least seven years after the initial removal. The POC to be removed are less than 15 inches dbh. These trees are either infected or susceptible to infection with PL because of their proximity to infected trees, although some could be resistant to PL. Removal of these trees is intended to remove the source of PL spores from an area where human traffic could spread the spores to uninfested areas.

Some POC will continue to die in the PL infestation sites along the current alignment of the Little Bald Hills Trail until either the POC seed bank or the PL spore bank are exhausted. This is expected to last for at least several decades, since PL spores can survive in soils for as long as 7 years. Removal of all healthy and diseased POC less than 15 inches dbh from the Hiouchi Trail infestation will be a direct, localized long-term adverse effect but PL-resistant POC will persist in other places in the parks. Although some POC in the parks would die or be removed, POC produces many seeds and will persist in RNSP as long as there are PL-resistant trees.

Removal of POC at the Hiouchi Trail infestation site will be a direct adverse effect on the healthy trees but will have a long-term benefit to the POC populations in the parks. Year-round use of the Little Bald Hills Trail increases the risk that trail users would continue to spread PL if they leave the trail but this risk is negligible compared to the long-term benefit to POC persistence from rerouting the trail. The degree of benefit to the long-term persistence of POC in the parks and throughout the range of POC will depend on the effectiveness of the park actions in combination with the actions of the USFS and the BLM in protecting POC throughout its range. Therefore, the selected action will not impair park vegetation resources.

Wildlife, including Sensitive Species—No fish or aquatic species will be directly affected by the selected action. Therefore, the selected action will not impair aquatic wildlife, including state and federally listed rare or threatened anadromous fish.

Parts of the selected action are aimed at increasing staff and public awareness of POC-related issues, and making recommendations for project modifications that will reduce the likelihood of a project introducing the disease to uninfested areas. To the extent that education and project planning slow the spread of PL and reduce long-term mortality of POC, the effects on wildlife habitat will be beneficial over the long-term by maintaining the current composition and structure of the vegetation community. These actions will have negligible to minor long-term indirect positive effects on wildlife species that occupy areas with POC to the extent that POC persists as a component of park vegetation communities. These actions will not impair wildlife resources, including threatened and endangered wildlife, in RNSP.

The proposed action will have negligible to minor, short-term localized adverse effects on wildlife, including federally-listed threatened bird species and the Pacific fisher, from disturbance from humans

and equipment during construction of the Little Bald Hills Trail reroute. There might be moderate adverse effects on Mardon skipper butterflies from work crews walking through skipper habitat if eggs or larvae are present. There will be negligible effects on wildlife from removal of POC along the Hiouchi Trail or from trail improvements, because these areas are subject to ongoing disturbance from use and maintenance of the trails, and because other trees are present to provide habitat. The primary adverse impact on wildlife will be a negligible to minor effect on wildlife habitat from loss of POC until the spread of PL is reduced and no new trees are infected, and other tree species fill in gaps in the canopy.

No potentially suitable marbled murrelet nesting habitat, including primary constituent elements of critical habitat, will be removed or modified by any of the proposed management actions under the selected action. The selected action will not affect marbled murrelets provided that work restriction periods are observed.

The USFWS has concurred with the NPS determination that the selected action may affect but is not likely to adversely affect northern spotted owls, provided that work restriction periods are observed. The proposed action will have negligible to minor short-term localized adverse effects on habitat suitable for northern spotted owls from continued mortality and removal of POC for the Little Bald Hills trail reroute and to treat the localized infestation on the Hiouchi Trail but no direct effects on owls.

The selected action will not impair wildlife resources in the parks, including federally or state-listed rare, threatened, or endangered species.

*Cultural Resources*— The selected action is anticipated to have negligible to minor impacts on archeological or historic resources, traditional cultural properties, and cultural landscapes. Therefore, cultural resources will not be impaired by the selected action.

Visual Quality—The selected action will not impair visual quality or scenic resources because POC is not a dominant tree in most of the park vegetation communities. There are no extensive pure stands of POC where dying and dead trees could become a dominant landscape feature. The trail improvements will have negligible temporary localized adverse effects on the surrounding soils and vegetation. The location where POC will be removed along the Hiouchi Trail is very close to US 199, and to residential and commercial areas dominated by exotic vegetation. The trees to be removed for localized sanitation are small, diseased, and dead or dying. Therefore, the selected action will not impair scenic quality.

## Mitigation Matrix, Port-Orford-cedar Management in Redwood National and State Parks 2005

Impact	Mitigation	Responsible Party
Air Quality—fugitive dust from trail construction, maintenance and use, and tree removal; smoke from pile burning	Fugitive dust will be temporary, localized, and negligible; no mitigation prescribed. Pile burning will occur in the winter outside the fire season and will be conducted only if permitted by the Air Quality Management District.	NPS trail and fire crews
Soils, Topography, and Water Resources—soil erosion from trail construction, improvements, maintenance, and use; wet areas on trails contribute to erosion and runoff	New alignment of Little Bald Hills Trail will be on stable soils at minimal width and minimal cut-and-fill; bridges and culverts will be used to keep trail users from contacting wet soils.	NPS trail crew
Vegetation-non-resistant POC lost to PL; healthy POC removed at Hiouchi Trail infestation; 1 acre of vegetation disturbed for Little Bald Hills Trail reroute	No short-term mitigation possible for loss of non-resistant POC or removal of healthy POC at Hiouchi Trail infestation site; long-term persistence anticipated from rerouting Little Bald Hills Trail and improving Hiouchi Trail to keep trail users from spreading PL to uninfested areas; no mitigation prescribed for vegetation removed for trail reroute or maintenance because the vegetation is common and routinely cut for regular trail maintenance.	NPS trail crew and vegetation management staff
Wildlife–localized short-term disturbance from trail work and tree removal	Wildlife sensitive to noise and disturbance will temporarily vacate work areas; no mitigation prescribed.	NPS trail crew and vegetation management staff
Sensitive, Threatened and Endangered Species—no fish or aquatic species affected; two listed birds and two candidate species present in Little Bald Hills	Sensitive plants avoided when laying out Little Bald Hills Trail reroute; no mitigation required for fish or aquatic species; no murrelet habitat affected; no effects to murrelets provided annual work restriction periods are observed; northern spotted owls and Pacific fisher not adversely affected by negligible loss of habitat or disturbance provided work restriction periods are observed for owls; Mardon skipper eggs or larvae might be affected by crews walking through habitat but effect can be minimized by timing of work and disturbance to vegetation while accessing Little Bald Hills Trail worksite.	NPS trail crew and vegetation management staff
Cultural Resources—no effects on known resources	Work will be stopped if previously unknown archeological sites or historic resources are discovered until NPS consults with SHPO or affiliated American Indian tribes to develop appropriate mitigation.	NPS trail crew and cultural resources program manager
Visual quality—healthy POC removed at Hiouchi Trail infestation site	Trees to be removed are less than 15 inches in diameter and do not occur in dense stands; no short-term mitigation can be prescribed.	NPS vegetation management staff

#### **Basis for Decision**

Based on the environmental assessment, analyses of issues and alternatives, together with consideration of public interest and the relation between public interest and laws, statutes, and regulations for managing NPS units, the ability of the mitigation measures to reduce or climinate adverse impacts, and the concurrence of agencies and affiliated American Indian tribes that were consulted, the NPS is implementing the proposed action described in the *Environmental Assessment, Port-Orford-cedar Management in Redwood National and State Parks, Del Norte County, California,* dated October 2004, to manage Port-Orford-cedar in Redwood National and State Parks by rerouting a section of the Little Bald Hills Trail away from an area infested with PL, improving small sections of the Hiouchi Trail and selectively removing healthy and diseased Port-Orford-cedar in a 2-acre area around the Hiouchi Trail infested with PL to keep trail users from contacting PL-infested mud and spreading PL to uninfested areas, increasing education efforts about PL and Port-Orford-cedar, mapping and monitoring Port-Orford-cedar health and PL occurrence in the parks, analyzing park projects for the risk of spreading PL, and recommending management practices to avoid spreading PL for park projects, including fire management, that take place in Port-Orford-cedar areas.

It is the determination of the NPS that the program activities and strategies for managing Port-Orford-cedar in Redwood National and State Parks as described in Alternative 2 (the proposed action and environmentally preferred alternative) in the *Environmental Assessment, Port-Orford-cedar Management in Redwood National and State Parks, Del Norte County, California*, dated October 2004, do not constitute a major federal action significantly affecting the quality of the human environment, nor are these activities and strategies without precedent or similar to ones that normally require an environmental impact statement. Therefore, in compliance with the National Environmental Policy Act, the National Park Service will not prepare an environmental impact statement, and will proceed with implementation of the program as soon as practicable.

nwbu.h.

Recommended:

Bill Pierce

Superintendent

Redwood National Park

Approved:

Jonathan B. Jarvis

Regional Director

Pacific-West Region

Finding of No Significant Impact Page 18 of 18

#### **ERRATA**

# Environmental Assessment Port-Orford-cedar Management in Redwood National and State Parks Del Norte County, California February 2005

This errata sheet should be attached to the *Environmental Assessment, Port-Orford-cedar Management in Redwood National and State Parks, Del Norte County, California* (EA) dated October 2004.

These errata are intended to clarify the terminology in the EA for management of Port-Orford-cedar (POC) in Redwood National and State Parks (RNSP) when compared to terminology used to describe a larger regional management strategy developed by the U.S. Department of Agriculture-Forest Service (USFS) and U.S. Department of the Interior-Bureau of Land Management (BLM) for USFS and BLM lands in southwestern Oregon and northwestern California. None of the corrections or clarifications requires a change to the National Park Service (NPS) proposed action nor do the changes and clarifications alter the effectiveness of the proposed action for protecting POC in the parks. One of the purposes for developing a program to manage POC in the parks is to ensure that management actions on park lands are consistent with actions taken by the USFS to protect Port-Orford-cedar on national forest lands that are adjacent to the parks. The selected action in RNSP has been developed to be consistent with and complementary to the management of POC by the USFS and BLM, whose lands contain most of the naturally occurring POC.

The EA prepared by the NPS for management of Port-Orford-cedar in the parks cited the January 2004 Final Supplemental Environmental Impact Statement [for] Management of Port-Orford-cedar in Southwest Oregon (U.S. Department of Agriculture-Forest Service; U.S. Department of the Interior-Bureau of Land Management, 2004 [FSEIS].)

The FSEIS was prepared by the USFS and the BLM. The EA cites only the BLM's May 2004 ROD. The USFS and the BLM prepared separate Records of Decision (ROD) to document their respective final management decisions. The corresponding USFS document is the March 2004 Record of Decision and Land and Resource Management Plan Amendment for Management of Port-Orford-cedar in Southwest Oregon, Siskiyou National Forest, Coos, Curry, and Josephine Counties in Oregon; Del Norte County in California. The management strategies outlined in each ROD are the same for the two agencies.

*Phytophthora lateralis* is described in the NPS EA as an exotic root pathogen, based on the information presented in the USFS/BLM FSEIS (page I-3, Background). Although all available evidence strongly indicates that *Phytophthora lateralis* is an introduced species, non-native to the U.S., a known pathway of introduction has not been established conclusively, according to the USFS Port-Orford-cedar Program Manager.

Three sets of terms—disease/pathogen; infection/infestation; and eradication/sanitation—were not specifically defined in a glossary in the EA. There are technical distinctions between these pairs of terms that might cause confusion to readers who compare the NPS EA to the

USFS/BLM's FSEIS, although the NPS action defined in the EA will not change as a result to differences in the terminology.

The definitions below are from the Glossary in the USFS/BLM FSEIS and are included here to ensure that readers are aware that there might be slight differences between NPS and USFS/BLM management actions.

The EA uses the terms "disease" and "pathogen" interchangeably. According to the definitions from the FSEIS, a disease is an abnormal, injurious physiological condition brought about by continuous irritation. Plant disease usually involves a complex relationship between a susceptible host, a conducive environment, and a causal agent called a pathogen. A pathogen is defined as a parasite able to cause disease in a particular host or range of hosts. The pathogen, *Phytophthora lateralis*, is the agent that causes Port-Orford-cedar root disease. Thus, it is more correct to say that the pathogen, and not the disease, can colonize an area or can be imported or exported.

Infection is defined as the attack of a living organism by a pathogen, i.e. the pathogen enters and establishes a pathogenic relationship with its host. Infestation is defined as soil or other substratum that is occupied by a pathogen; it is used in the sense of "contaminated." Thus, an infection is a process that results in an infestation.

The term eradication was not used in the EA because the term implies that all the POC in the parks would be removed, whereas the selected action calls for only limited removal of POC in a very small area of the parks. Eradication as used by the BLM and USFS refers to eradication of a PL infestation; removal of host POC is one eradication technique. Eradication is defined by the USFS and BLM as the removal of live Port-Orford-cedar trees in and around a *Phytophthora lateralis* infestation to keep the spores from spreading. The term eradication differentiates between removal of POC in and around infested areas from the term sanitation, which describes removal of POC from areas that are not infested or do not presently have the disease but which are at high risk of infestation.

Sanitation as used by the BLM and USFS is primarily associated with POC along roads. The FSEIS defines sanitation as removal of Port-Orford-cedar trees from infested areas along roads, trails, or around uninfested Port-Orford-cedar stands to prevent spores from being generated and reaching nearby uninfested stands, or roads where they could be picked up by passing traffic. Sanitation also includes removal of Port-Orford-cedar trees from uninfested areas along roads, trails, or around uninfested areas to prevent spores falling off vehicles or originating from the nearby infested areas from reaching a host and thereby spreading the disease. Thus, sanitation on USFS and BLM lands is associated with roads, trails, or other places where PL spores could be deposited or picked up.

In the EA, the term "localized sanitation" is used to describe the removal or girdling of POC less than 15 inches in diameter at a small infestation site that happens to be located in the vicinity of the Hiouchi Trail. The term "localized sanitation" was used to distinguish the NPS proposed action from "preventative sanitation" in Alternative 3 that would involve removal of POC along about 7.8 miles of roads and trails in the parks and that was not selected because of the number of healthy and possibly resistant trees that would be removed. The localized sanitation that will occur under the selected action is more similar to eradication as defined in the FSEIS because localized sanitation involves removal of POC at an infestation site that happens to be located along the Hiouchi Trail. Other known infestation sites in the parks are not scheduled to be treated because there is little chance that spores will be spread by visitor contact. The EA considered but rejected an alternative calling for "complete sanitation of all infestation sites." Because of the

number of POC in the parks is relatively small and they occur in a relatively confined area, "complete sanitation" would require that all the POC in the parks have to be removed, which is more similar to eradication as defined in the FSEIS.

The term "root rot" is used in Appendix 2 of the EA. Root rot is a colloquial term for a class of diseases. It is more correct to use the term "Port-Orford-cedar root disease" when referring to the disease caused by *Phytophthora lateralis*.

In several instances, the EA states or implies that when a host Port-Orford-cedar tree dies or is killed by girdling or cutting, the *Phytophthora lateralis* spores will also die. The EA states that *Phytophthora lateralis* produces several different types of reproductive spores and that the rapid spread of *Phytophthora lateralis* is attributable to two types of spores—motile zoospores and thick-walled chlamydospores. The EA correctly notes that the chlamydospores are long-lived and more resistant to drying than the other spore types and can survive for as long as seven years in infected POC roots. These spores can also survive in POC root fragments in the soil. Therefore, *Phytophthora lateralis* spores from an infected POC tree do not continue to increase if the host tree dies or is killed but the one type of spore does not die immediately and can remain viable and thus a source of infection for as long as seven years.

Pacific yew is also infected by *Phytophthora lateralis* on infrequent occasions and is much less susceptible than POC. Pacific yew is a very minor component of park vegetation and is not targeted for management.

The list of interagency consultants on page 50 of the EA should include Frank Betlejewski, Port-Orford-Cedar Program Manager, U.S. Forest Service, Central Point, OR.

In the References section of the EA on page 51, the reference "Betlejewski, F. 2004. Late-Successional Reserve Analysis for Port-Orford-Cedar within the Biscuit Fire. U.S. Department of Agriculture-Forest Service internal memo, on file as Southwest Oregon Forest Insect and Disease Service Center, Central Point, Oregon" should be replaced with the following:

U.S. Department of Agriculture-Forest Service; U.S. Department of the Interior-Bureau of Land Management. 2004. Biscuit Fire Recovery Project, Final Environmental Impact Statement. Medford, Oregon.